



Partner in Growing



User Manual

Original document

version 2015-1



Direct Pot Machine

Machine nr.:



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Preface

This user manual is written for anyone working on or with the machine. Before working on or with the machine, first read this manual.

This user manual contains important instructions / information on how to use the machine in a safe, professional and economical way and must always be available where the machine is used.

In addition to this user manual, the mandatory rules and regulations for accident prevention and environmental protection in the country and place of use of the machine must also be observed.

This user manual contains information on the operation of the machine with all the possible options. Use only the information that applies to your machine. Depending on the intensity of use and customer requirements, this machine can be equipped with various options. Contact your sales consultant.

Supplier details if not directly supplied by Javo BV. Dealer stamp:



Javo BV is not responsible for any errors in this manual or the consequences thereof.

Javo BV is not liable for damage or consequential damage caused by operating errors, lack of expert maintenance and any use other than described in this manual.

The liability of Javo BV also expires once modifications or additions are made without written permission of Javo BV.

This machine is suitable for process and environmental conditions as stated in section "Specifications and Tolerances" of this manual. Any other use is not authorized by Javo BV and this allows the operator and / or its environment at risk.

Table of contents

1	Technical specifications and tolerances	4
1.1	Type plate.....	4
2	Safety.....	5
2.1	Provisions	5
2.2	Safety devices on the machine	6
2.3	Explanation of icons and symbols.....	6
3	Description of the machine	7
3.1	Machine overview	7
3.2	Outline drawing with main dimensions	7
3.3	Options.....	8
3.4	Operation	8
3.5	Machine workstations.....	8
3.6	Controls.....	9
4	Transport	10
5	Mounting, installation and commissioning	11
5.1	Placement	11
5.2	Facilities to take care of by the user	11
5.3	Mounting / Connecting.....	11
5.4	Check rotation direction substrate plate and substrate retour belt	12
5.5	Check substrate conveyors tension	12
5.6	Check pottrack chain tension.....	13
5.7	Centring the pot-erector	13
5.8	Mount the correct pottrack plates	14
5.9	Set substrate conveyor and pottrack speed	14
5.10	Set substrate height sensor	14
6	Operation.....	15
6.1	Start.....	15
6.2	Stop	15
6.3	Emergency stop.....	15
7	Maintenance	16
7.1	Required tools and equipment	16
7.2	Preventive Maintenance	16
7.3	Test safety circuit	17
7.4	Fault list.....	17
7.5	Drawings and schemes.....	18
7.6	Spare parts	18
7.7	JavoNet.....	18
7.8	Customer support and advice	18

8	Disposal of machine or machine parts	18
9	EG-conformity statement.....	19

1 Technical specifications and tolerances

This machine is only intended to fill pots automatically with cuttings. The machine automatically puts pots on a pottrack. The cuttings are hung in the pot and the pot can be manually filled with substrate. The pot is placed on a conveyor belt, which transports the pots further out of the machine. This machine is meant for processing pots, cuttings, substrate and other materials that are described in this manual only. Detailed operation of the machine is described in section "Operation".



This machine may be used only within the limits for specifications and tolerances of the order, on the assembly drawing and indicated in this manual. If the machine is used outside these specifications, Javo BV can not take responsibility for this machine.



This machine is intended for products as agreed in the order confirmation only. To ensure the proper operation of this machine, only products with specifications and tolerances as specified in the order may be used.



Do not use the machine for purposes other than the intended purpose of Javo BV. This can lead to damage and danger to the operator and its environment.



This machine is CE marked. When placing multiple machines in one line, the entire line must be properly CE marked before using this machine. Until proper CE Marking of the line is carried out, commissioning of this machine is prohibited.

Specifications	
Voltage	400Volt 50Hz 3~+N+ PE
Machine connection	16A 5pole
Power consumption	1,5 kW
Weight	±1250 kg
Height conveyor	913 mm
Length x width x height	5050 x 3250 x 1300 mm
Max. speed	±2.000 pots/h
Min. speed	inapplicable
Minimum pot diameter	9 cm
Maximum pot diameter	15 cm
Number of potholders	28
Content substrate bin	±1000 Litre (1m ³)
Number of workplaces	4 to 5
Pot automat	Pneumatic pot erector with blowers
Expiration	Stroke 200x32
Expiration conveyor	1x 3m 150mm vario smooth surface (excl. TRB-WCD)
Year of construction	See type plate
Type product	As agreed in the order confirmation.

1.1 Type plate

The type plate is placed onto the main cabinet door.

JAVO Partner in Growing		CE
Westeinde 4 www.javo.eu	2211 XP Noorwijkerhout	Nederland info@javo.eu
Type		
Machine nr.		
Bouwjaar		
<input type="checkbox"/> V	<input type="checkbox"/> kW	
<input type="checkbox"/> A	<input type="checkbox"/> Hz	

2 Safety



This machine is built according the state of the art technique and the accredited safety regulations. Despite this, the body and life from the user or third parties can be in danger when using it. There could also arise damage to the machine or other goods when using it.



This machine is CE marked. When placing multiple machines in one line, the entire line must be properly CE marked before using this machine. Untill proper CE Marking of the line is carried out, commissioning of this machine is prohibited.

2.1 Provisions

1. Operation and maintenance of this machine must be performed by qualified personnel in compliance with warnings on the machine and in accordance with the user manual. Keep children and other (unauthorized) persons away while using machine.
2. This machine is suitable for process and environmental conditions as stated in section "Specifications and Tolerances" of this manual only. Any other use is not authorized by Javo BV and this allows the operator and / or the environment at risk.
3. It is prohibited to modify this machine, without prior written approval of Javo BV.
4. Thermal fuses and torque limiters may not be set different upon delivery of the new machine. The thermal circuit breakers should never be used to turn on / off the machine.
5. This machine should be installed so that there is sufficient space remaining for providing safe instructions and / or performing maintenance and / or inspections. Put the brakes on the castors before the machine is turned on.
6. Keep the work area clean and well lit. Cluttered or dark areas invite accidents.
7. This machine is not suitable to be used outside. Electrical components are only splashproof. Keep the machine away from rain and moisture. When using the machine in a humid environment is unavoidable, you should use an RCD.
8. Keep hands, hair, loose clothing and / or jewelry away from moving parts of the machine. Wear appropriate clothing without loose parts. Wear non-slip work shoes.
9. As long as the machine is on, no connection or safety devices may be removed. The machine may only be used when all protective devices and safety-related facilities are available and ready for use.
10. Do not stand on the machine when it is operating.
11. Never move the machine if the power cable and / or pneumatic supply is still connected.
12. Prescribed checks and maintenance in the user manual must be observed.
13. Allow the machine to be serviced and repaired by qualified personell only with original replacement parts.
14. In addition to the user manual, generally applicable statutory and other regulations regarding accident prevention and environmental protection have to be respected. This is also referred to handling of personal protective equipment.
15. Inform operating personnel before start maintenance. Interrupt if possible the power (mains), before start machine investigation or maintenance by turning off the main switch and locking the main switch. Pull the plug from the wall socket.
 - a. As work must be done with power supply (mains) voltage on the machine, then arrange an additional person who can operate the emergency stop.
16. When a machine part is damaged or not working in the prescribed manner, the work must be interrupted immediately. Resumption allowed only when the machine part is repaired or replaced and checked. Consult your dealer if the machine is not functioning properly.
17. Machine and / or parts must be disposed in accordance with local laws and regulations.











2.2 Safety devices on the machine








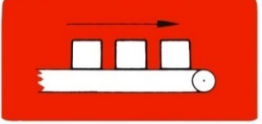
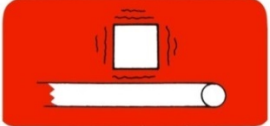


Caps and doors are screening moving parts. Always place back caps and close doors before the machine is turned on. Caps and doors should remain closed while operating the machine.

The motors of the machine are protected against overload by thermal switches. These switches are located in the control box.

2.3 Explanation of icons and symbols

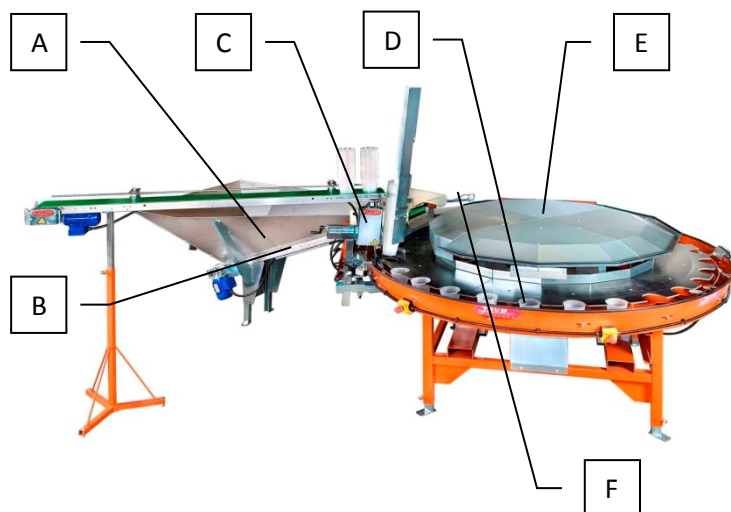
Pictogram	Meaning
	Read and understand this manual before using the machine and / or performing maintenance.
	Remove Power (mains).
	Wear during all work on or with the machine safety shoes and safety glasses.
	Wear during cleaning and maintenance work on this machine also safety gloves and protective clothing.
	Warning. Important points and / or instructions regarding safety and / or injury prevention are marked with this warning sign.
	Dangerous electrical voltage. Dangerous electrical voltage present.
	Risk of crushing. Danger of moving or rotating parts.
	It is forbidden to wear Loose clothing, long hair and / or jewelry nearby moving parts of the machine.
	Trespassing.
	Do not rinse control cabinet Danger of moisture in the cabinet when it is rinsed with water.

Symbols that may be present on this machine			
Drill 	Direction of movement 	Speed ground feeder (curved) 	Speed ground feeder (straight) 
Speed pot belt (curved) 	Speed pot belt (straight) 	Brush disc Rotofill 	Tray belt Rotofill 
Rotor Rotofill 			

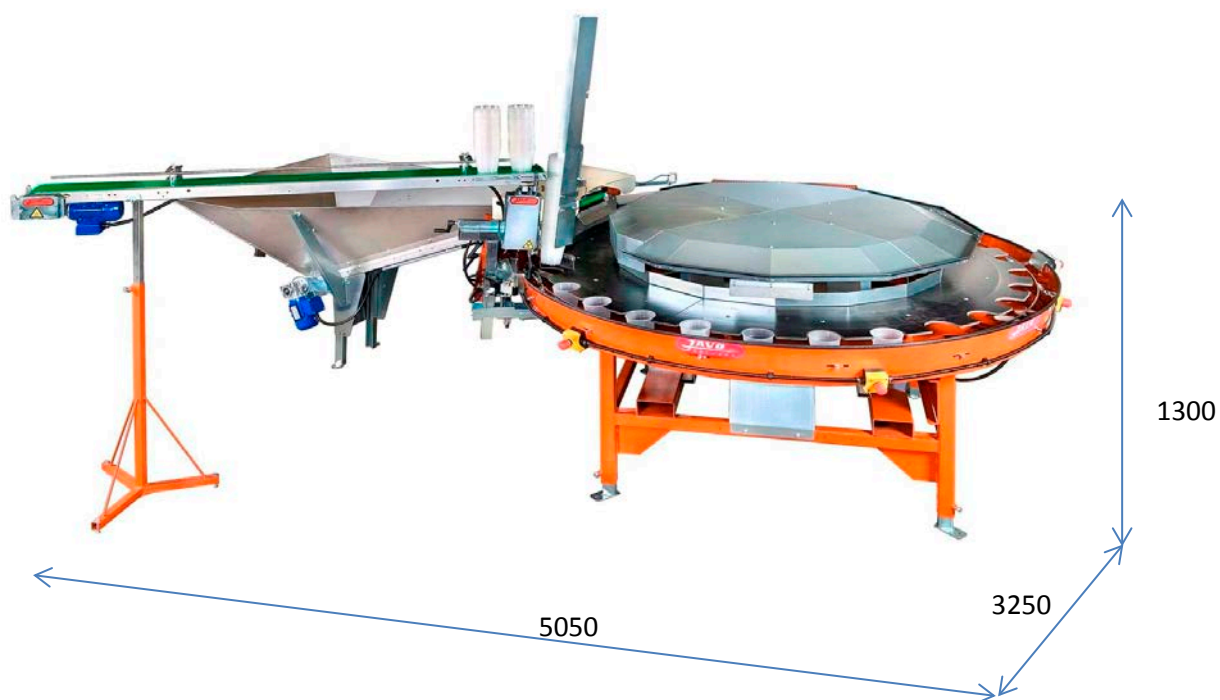
3 Description of the machine

3.1 Machine overview

- A. Substrate bin
- B. Substrate supply belt
- C. Pot erector
- D. Pottrack
- E. Pottrack plate
- F. Pot expiration



3.2 Outline drawing with main dimensions



3.3 Options

Depending on the intensity of use and customer requirements, this machine can be equipped with various options. Contact your sales consultant.

Options	Code	Specifications
4 meter 5x1.5 cable incl. 16A plug	900965	
Continuous socket	900966	Non-standard.
Set of blowers at expiration	AFLA1	Electrically on/off
Pots Stock conveyor	PO-TRB15	Incl. support, guiding one side, steering
Pneumatic pot-brake	POTREM2	
Gradient Plates for other pot diameters	PHP	3 parts

3.4 Operation

The process of the machine starts with the substrate bin, which is filled with substrate. By using the soil conveyor belt and return belt, the soil is transferred to the pottrack plate .

The substrate is on the rotating pottrack plate. The pottrack is filled with pots of the pot-erector. The cuttings are placed into the pots manually by the machine operator. Then substrate is filled in the pot.

The pot is now displaced until it is placed on the expiration conveyor belt by the expiration system.

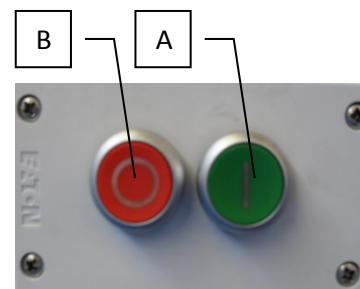
3.5 Machine workstations

This machine has operator places at the pottrack.

3.6 Controls

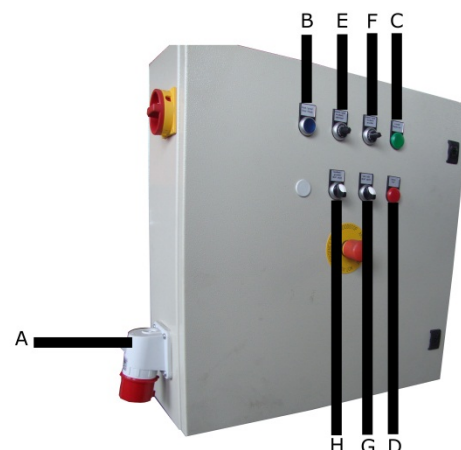
The motor is controlled with the control panel. This control panel is flexible around the machine to be used by means of a cable. The control panel consists of the following buttons;

- A. Start button
- B. Stop button



At the electrical cabinet of the machine, these buttons and connectors are placed:

- A. Main power connection IN
- B. Reset button (blue button)
- C. In operation (green light)
- D. Fault/ Error (red light)
- E. Speed substrate conveyor potentiometer
- F. Speed substrate conveyor potentiometer
- G. Substrate conveyor off / on
- H. Table off / on



The machine is equipped with 5 emergency stop buttons (4x around the machine and 1x at the main cabinet).



4 Transport



Follow all instructions described in this manual, in particular chapter safety.

On delivery of the machine, a Javo mechanical engineer must be present to unload the machine from the (freight) wagon.

Prior to moving the machine, the power should be disconnected. Make sure the cables are stowed sufficiently.

When moving within the company (when the machine does not need to be lifted) the state of the machine should be checked. Make sure the path to be travelled is free, so the machine can be moved to the desired position without obstacles.

If the machine is to be lifted for movement (outside the company), please contact your dealer or contact a professional shipping company.

The machine must be transported upright.

The relative humidity should not be too high so that water condenses in the machine.

Report damage during or immediately after delivery to the transport company and to Javo BV. Take all necessary steps to prevent further damage.

5 Mounting, installation and commissioning



Follow all instructions described in this manual, in particular chapter safety.



This machine is CE marked. When placing multiple machines in one line, the entire line must be properly CE marked before using this machine. Up to CE Marking of the line, commissioning of this machine is prohibited.

5.1 Placement

The machine must be placed on a flat surface, with sufficient weight capacity. Install the machine so that there is enough space left for service providing, safe instructions and / or cleaning, maintenance and / or inspections. Put the brakes on the castors before the machine is turned on.



This machine is not suitable to be used in the open air. Electrical components are only splashproof. Keep the machine away from rain and moisture. When using the machine in a humid location is unavoidable, you should use an RCD.

5.2 Facilities to take care of by the user

Prior to delivery of the machine, the required materials and facilities (air, power, substrate, etc.) needs to be present within 3 meters of machine.

Required power supply: 400 Volt, 3 Phase + Neutral + Earth. (N. America: 208/220V 60Hz.).

5.3 Mounting / Connecting

If applicable, the components supplied are to be mounted on the machine. Make sure that the moving parts are free. If the machine is complete, it can be connected (by a competent person) to the power supply.



Keep hands, hair, loose clothing and / or jewellery away from moving parts of the machine. Wear appropriate clothing without loose parts. Wear non-slip work shoes.



As long as the machine is on, no connection or safety devices may be removed. The machine may only be used when all protective devices and safety-related facilities are available and ready for use.

5.4 Check rotation direction substrate plate and substrate retour belt



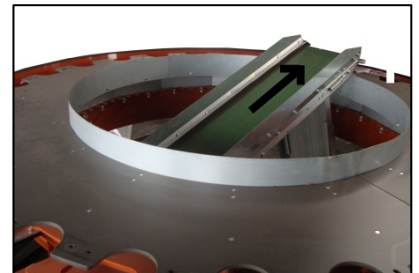
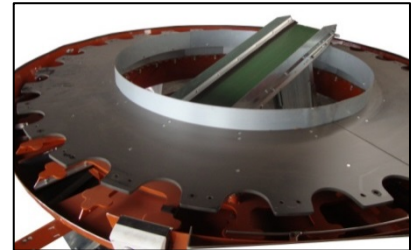
Check the rotation direction of the substrate plate and substrate retour belt before you start working with the machine.

The rotation direction of the substrate plate is standard counter clockwise. The direction of rotation should go from the pot-erector to the expiration.

The desired direction of rotation of the substrate retour belt is shown in the picture.

Procedure:

1. Connect the power cable.
2. Start the substrate plate and substrate retour belt.
 - a. Turn on the main switch.
 - b. Press the reset button emergency stop circuit.
 - c. Start the machine with the green button.
3. Check the direction of rotation.
4. Stop the machine by pushing the red button.
5. Turn the main switch off.
6. When rotation direction is incorrect:
 - a. Remove the plug from the socket.
 - b. Open the plug and switch 2 of the 3 phases in the plug. This should only be carried out by suitably qualified personnel.



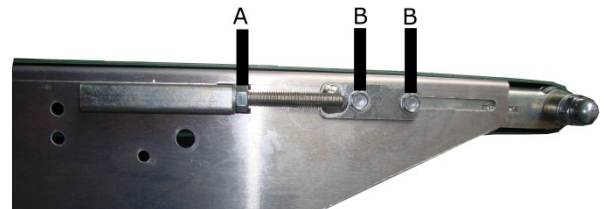
5.5 Check substrate conveyors tension



Check the substrate conveyors belt tension before you start working with the machine.

Procedure:

1. Check the substrate conveyors belt tension. The correct tension is obtained when the belt in the middle deflects $\pm 40\text{mm}$.
2. Adjust the belt tension if necessary .
 - a. Loosen the four screws (B).
 - b. The tension can be adjusted by simultaneously turning both sides of the belt (A).
 - c. Tighten the four screws (B).



The tension of the belts should not be too tight.

5.6 Check pottrack chain tension



Check the pottrack chain tension before you start working with the machine.

Procedure:

1. The drive of the pottrack is placed at the bottom of the pottrack. The actuator is placed at the left side of the expiration.
2. To adjust the chain the drive cover must be removed. Loosen the four M6 bolts (A) of the clamping plate one stroke.
3. Stretch the tensioner a fraction (millimeters) and then tighten the four bolts.



It is prohibited to lubricate the chain.

5.7 Centring the pot-erector

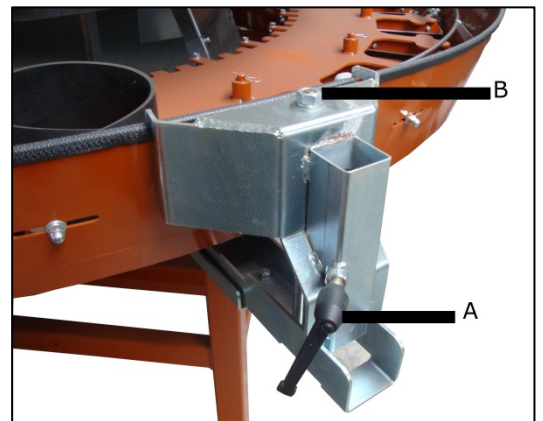


Centre the pot-erector before you start working with the machine.

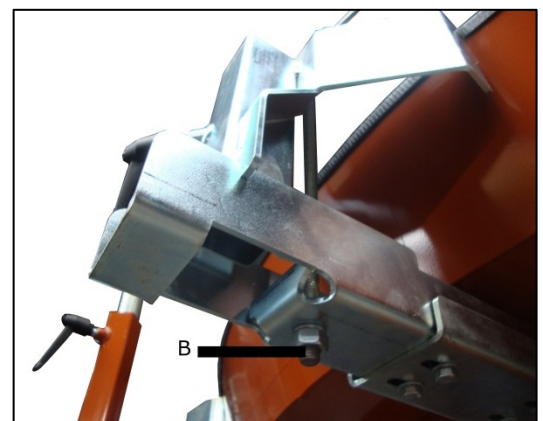
The pot-erector can be adjusted in height and in the longitudinal direction.

Procedure:

1. The height is adjusted by loosening toggle (A) and sliding the pot-erector up or down.
2. To move the pot-erector in the longitudinal direction, loosen the two M12 (B) bolts. The pot-erector can now be shifted in the longitudinal direction.



If the pot-erector is adjusted in the longitudinal direction then this needs only to be adjusted up to a few centimetres. Adjustment is meant to ensure that the pot will fall correctly.



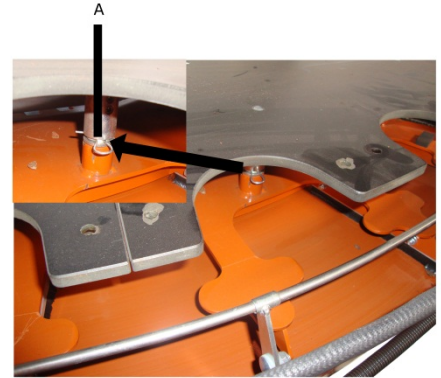
5.8 Mount the correct pottrack plates



Mount the correct pottrack plates before you start working with the machine.

Procedure:

1. Loosen the four plastic sheets (normally located under a layer of substrate).
2. Pins are mounted at the bottom side of the plastic plate. These pins fit into the pottrack plate and are secured with a cotter pin (A).
3. Loosen all cotter pins.
4. Lift the plastic plate and replace it with another (right pot diameter).
5. To ensure the new plastic plate, cotter pins must be replaced.



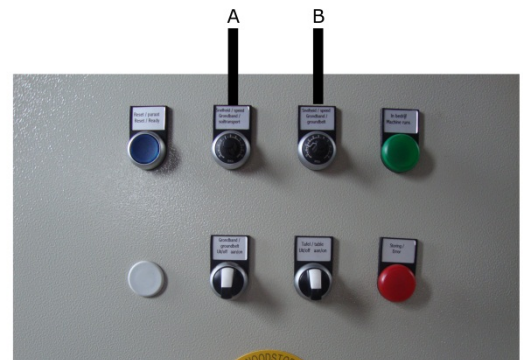
5.9 Set substrate conveyor and pottrack speed



Set the pottrack and substrate conveyor speed before you start working with the machine.

Procedure:

1. Check the substrate conveyor speed. Set the substrate supply so that the pots are filled sufficiently before they reach the scraper.
2. If the speed needs to be adjusted:
 - a. The speed can be adjusted with potentiometer (A).
3. Check the speed of the pottrack. Set the pottrack speed so that pots are filled and worked accurately.
4. If the speed needs to be adjusted:
 - a. The speed can be adjusted with potentiometer (B).



5.10 Set substrate height sensor

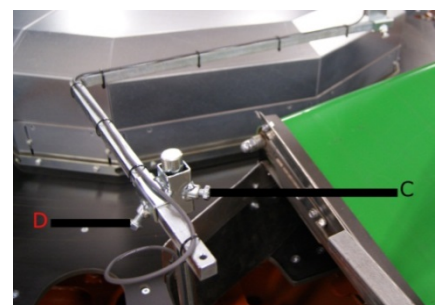
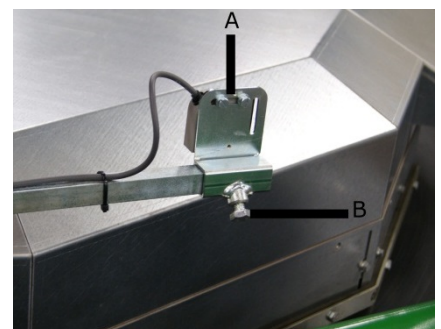


Set the substrate height sensor before you start working with the machine.

The amount of substrate on the pottrack plate can be adjusted setting the sensor height. The higher sensor (A) will be the bigger the layer of substrate is placed on the pottrack plate. The lower the sensor is mounted, the thinner the layer will be.

procedure:

1. Loosen M8 bolt (B).
2. Adjust the sensor in the longitudinal direction of the machine.
3. Loosen M8 bolt (D).
4. Adjust the sensor in the transverse direction of the machine.
5. Loosen M8 bolt (C).
6. Adjust the height of the sensor.
7. Tighten all bolts.



6 Operation



Follow all instructions described in this manual, in particular chapter safety.



Keep hands, hair, loose clothing and / or jewelry away from moving parts of the machine. Wear appropriate clothing without loose parts. Wear non-slip work shoes.



As long as the machine is on, no connection or safety devices may be removed. The machine may only be used when all protective devices and safety-related facilities are available and ready for use.

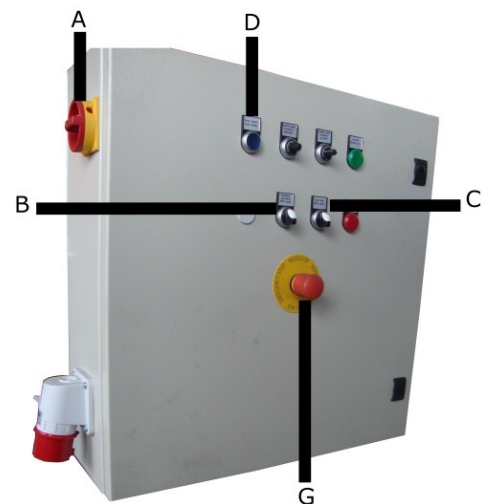


If a machine part is damaged or not working in the prescribed manner, work must be interrupted immediately. Resumption allowed only when the machine part is repaired or replaced and checked. Consult your dealer if the machine is not functioning properly.

6.1 Start

Start procedure:

1. Turn on the main power at the electrical cabinet (A).
2. Turn on the table and potttrack with switches (B+C) at the electrical cabinet.
3. Press the blue reset button (D).

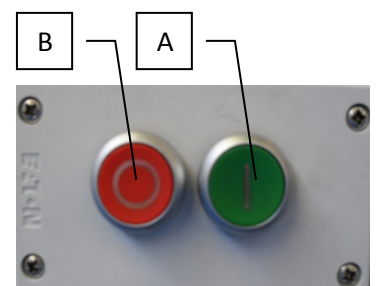


4. Press the green button (A) on the control panel to start the machine.

6.2 Stop

Stop procedure:

1. Press the red stop button (B) on the control panel.



6.3 Emergency stop

Emergency stop procedure:

1. Press the red emergency stop button on the machine to activate the emergency stop.

Restart after emergency stop procedure:

1. Ensure that the cause of the emergency is resolved.
2. Close all doors and covers.
3. Pull the red emergency stop button to reset.
4. Press the reset button.
5. Press the green button on the control panel to start the machine.



7 Maintenance



Follow all instructions described in this manual, in particular chapter safety.



Maintenance of this machine must be performed in compliance with warnings on the machine and in accordance with the user manual by qualified personnel.



Keep hands, hair, loose clothing and / or jewelry away from moving parts of the machine. Wear appropriate clothing without loose parts. Wear non-slip work shoes.



As long as the machine is on, no connection or safety devices may be removed. The machine may only be used when all protective devices and safety-related facilities are available and ready for use.



Always unplug the plug from the socket before starting maintenance. Wear personal protective equipment (see section 2.3).

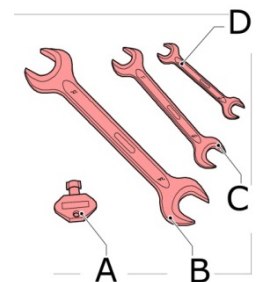


Inform operating personnel before start maintenance. Interrupt if possible the power (mains), before the machine is investigated or maintained by turning off the main switch and locking it and pull the plug from the socket. If work must be done with power supply (mains) voltage on the machine, work with an additional person who can operate the emergency stop.

7.1 Required tools and equipment

A set of keys is included with the machine, consisting of:

- A. Door key
- B. Spanner 24-27mm
- C. Spanner 17-19mm
- D. Spanner 10-13mm



7.2 Preventive Maintenance

For the following maintenance instructions normal use is considered. With heavy use, or use under extreme conditions, maintenance should be performed at shorter intervals.

Item	1x per...	Comments
Machine	Day	Check if moving parts are functioning correctly and not clamping and / or parts are broken or damaged in such a way that the operation is adversely affected. Have damaged parts repaired before use.
Conveyorbelts	Day	Check tension. See section "Mounting, installation and commissioning".
Materials in the machine	Day	Remove trays or other material that has fallen into the machine before starting the machine.
Machine	Day	Clean pottrack, substrate conveyors and drive chain with compressed air.
Safety components	Week	Test the safety circuit. See section "Test safety circuit".
Pictograms	Week	Check readability and replace if necessary.
Electrical installation	Year	Check for damage.
Electric motors	Year	Remove dust.

7.3 Test safety circuit

Procedure:

1. Start the machine.
2. Press the emergency stop button. The machine is now disabled.
3. Pull the Emergency Stop button. The machine remains off.
4. Press the reset button emergency stop circuit. All possibly connected conveyors start moving.
5. Start the machine



The machine must not be used when going through the above process, the machine responds differently than described above. Warn directly Javo BV.

7.4 Fault list

Problem	Possible cause	Action / Solution
Motor fault	mains voltage deviates more than 10% of the rated motor voltage	Provide the correct voltage
	Too high cooling air temperature	Provide cool air
	Poor cable connection	check the cable connection and repair if necessary
	Blown fuse	Replace fuse
	Too little cooling air caused by a clogged cooling air passage	Ensure proper inlet and outlet of the cooling air
The motor hums and takes too much power	Defect winding	Repair or replace the motor winding
Fuses are blown	Short circuit in wiring or motor	Rectify the short circuit
	Mechanical blockage of pottrack, elevator or boron	Remove blockages
	Motor is connected incorrectly	Connect the motor correct
Pottrack is not moving	Chain is slipping	Tension the chain
	Too much substrate between the pottrack	Clean the pottrack
Machine does not start	Emergency stop button is not pulled	Pull Emergency Stop button and reset the safety circuit by pressing the reset button
	Emergency stop button not reset	Reset the safety circuit by pressing the reset button
	Breaker tripped in main cabinet	See why circuit breaker has tripped. Remove obstacles to conveyors. Switch on the machine after solving the problem.
	Cable length too large causing voltage loss	Reduce cable length
	Voltage fluctuations caused by other devices on the same group	Ensure the correct voltage. Turn off other devices
Irregular and less filling of the pot	Substrate is too dry	For optimum operation of the Direct, the substrate has to meet a certain humidity.

7.5 Drawings and schemes

The drawings accompanying this machine are supplied in a separate file. The wiring diagrams are included in the electrical cabinet of the machine.

7.6 Spare parts

Only original spare parts and accessories of Javo BV may be used on the machine.

Javo BV advises you to take certain parts in stock because of wear sensitivity and / or any expected downtime for re-ordering of the parts.

The spare parts list can be found on the assembly drawings. These can be found on JavoNet.

When ordering (spare) parts at Javo BV, the following information must be included: drawing number, item number, desired length (if applicable) and the desired number of pieces.

7.7 JavoNet

We recommend you to register your machine on JavoNet. This way you get online access to all technical drawings and documents pertaining to your machine.

Visit our website (www.javo.eu) for more information and to request an account.



7.8 Customer support and advice

Our technical department will answer your other questions about repair and maintenance of your machine and spare parts. We can help you with any questions regarding the purchase, use and settings of products and accessories.

8 Disposal of machine or machine parts



Follow all instructions described in this manual, in particular chapter safety.

Perform the following steps when disposing the machine:

1. Decommission the machine and remove electric and pneumatic power.
2. Drain and remove all consumables.
3. Scrap the machine according to the local legislation.

9 EG-conformity statement

EG-conformity statement for machines (directive 2006/42/EG, annex II, under A.)



Javo BV
Westeinde 4
2211XP Noordwijkerhout
The Netherlands

Declares that:

Machine: **Direct**
Type: **Potmachine**

is in accordance with the **Machine directive 2006/42/EG** and complies with the provisions of the **EMC-directive 2004/108/EEG**

Complies with the harmonized European Standards:

Harmonized European standard	definition	Harmonized European standard	definition
NEN-EN-ISO 12100:2010	Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology	NPR-ISO/TR 14121-2:2010	Safety of machinery - Risk assessment - Part 2: Practical guidance and examples of methods
NEN-EN-ISO 13857	Safety of machinery - Safety distances to prevent hazard zones being reached by the upper and lower limbs	NEN-EN 13850	Safety of machinery - Emergency stop - Principles for design
NEN-EN-ISO 13849-1	Safety of machinery - Parts of Control Systems with a safety function - Part 1: General principles for design	NEN-EN-IEC 60204-1	Safety of machinery - Electrical equipment of machines - Part 1: General requirements

The Netherlands, Noordwijkerhout,
January 2015

Cees Bouwmeester
Director